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LENGTH OF COTTON LINT, CROPS 1916 AND 1917.

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DISTRIBUTION OF VARIETIES PRODUCED.

The data from which figures relating to long-staple cotton and the comments which follow are the result of an inquiry made in December, 1917. Reports were obtained from the regular crop reporters of the Bureau of Crop Estimates, including the aids of the field agents and of the cotton-crop specialist of the bureau in the following States: Mississippi, Texas, Arkansas, Oklahoma, South Carolina, Louisiana, Arizona, and California. This information was supplemented by special reports from buyers, exporters, and dealers, from seed breeders and from special investigations of several field agents and the cotton-crop specialist of the Bureau of Crop Estimates. In many sections of several States reporters were unable to obtain definite data, for only in districts where the growth of staple cotton has been recognized for several years is attention paid to the length of lint. In recognized staple-producing sections, cotton is ordinarily bought and sold on types showing quality of staple, color, and trash content. Elsewhere many buyers make no effort to determine length and character of the staple. Where the latter custom obtains, it is not to be wondered at that the farmer knows but little of the length of lint grown on his plantation. Neither is it strange, where the price for all cotton, regardless of the length of fiber, is approximately the same, that farmers grow varieties which produce the most lint. It is for this reason that the notorious "half-and-half" cotton and other short-lint varieties are being largely planted in many sections. West of the Mississippi River this very

short-lint cotton has gained favor among some farmers in the past few years, and until buyers refuse to purchase except at a considerable reduction in price as compared to the longer-lint varieties, it probably will continue to be planted.

The Department of Agriculture has repeatedly warned farmers against planting cotton of the "half-and-half" and other extremely short-stapled varieties. Among the reasons given are the following:

The lint of the "half-and-half" variety is of poor character, irregular, wasty, and very short, a large portion of the samples examined being less than seven-eighths of an inch in length of staple. Cotton less than seven-eighths of an inch is untenderable on future contracts made under the provisions of the United States cotton futures act, and therefore buyers will penalize it whenever discovered.

Cotton of less than seven-eighths inch staple is of approximately the same spinning value as the bulk of the cotton of India. On economic principles, the American product should be maintained on a higher level of intrinsic worth than that of India in order that the American crop may not be forced to compete in the markets of the world with the cotton of India.

Cotton of less than seven-eighths inch staple is inferior to the average American quality, and localities that produce such cotton in appreciable quantities soon establish reputations for an inferior product. The price of all cotton in such markets will suffer on account of the poor reputation of the market.

Competent cotton buyers discriminate against extremely short staple whenever such cotton is discovered. They should be equally careful to discriminate in favor of cotton of good staple. The farmer who produces inferior cotton is likely to find that his product brings a price materially lower than quotations would indicate as its true value. The seller commonly looks upon such discrimination as a penalty, while the buyer considers that he is paying the full value for an inferior commodity.

As the variety of seed planted is the primary factor in determining length of staple, and as there are early maturing prolific varieties which produce a staple of at least an inch in length, no farmer or community is justified in planting an inferior variety or in expecting the full market price for a debased article of commerce.

The States above named produced a total of 7,909,000 bales (500 pounds gross weight) of cotton, of which 1,264,000 bales, or 16 per cent, is reported as 1⅛ inches or longer in length of staple. In all probability these figures, if applied to actual measured length of lint, are too high. It is likely that much cotton sold as 1⅛-inch lint, but really shorter, is included in the report. This is true also of the figures shown for the previous years in comparison. It is estimated that the remaining cotton States, with a total production of 3,377,000 bales in 1917, and in which no close investigation was made, produced about 90,000 bales of long staple, not including 85,000 bales of Sea Island and Egyptian cotton grown in the States of Georgia, Florida, South Carolina, Arizona, and California. Of the total crop of staple cotton, 2 per cent, or 226,000 bales, including Sea Island and Egyptian, stapled better than 1¼ inches in length.

DAMAGE TO CROP FROM WEATHER AND INSECTS.

The cotton season of 1917 was not considered a very favorable one. The crop got a late start, the early part of the spring not being pro-

pitious for early seed germination. In much of the cotton-producing area of Texas and Oklahoma a severe and damaging drought extended throughout almost the entire season. Smaller areas in other States also suffered from drought. Boll worms did severe damage in portions of north Texas and Oklahoma, and boll-weevil damage covered a larger territory than in former years. However, in the older weevil-infested areas of Louisiana and Mississippi the damage was not so great as for the past several years. While the acreage in these States as compared to former years was considerably reduced, the crop planted showed the heaviest yield since the first weevil infestation. A killing frost, extending over more than half of the cotton belt early in October, caught many immature bolls and caused great loss in quality, though the weather during the winter was very favorable for gathering "bollies," or frostbitten, immature bolls. Owing to the high price prevailing for cotton in the fall and winter of 1917, "bollies" were gathered more carefully than in former years. Heretofore the bolly crop has come almost entirely from the States of Texas, Oklahoma, Arkansas, Tennessee, and Missouri, but during the past season considerable quantities of "bollies" were gathered in the States farther east. As a result, the bolly crop this year amounts to several hundred thousand bales more than in any recent year. The first of this cotton to move brought from 5 to 10 cents per pound under prices prevailing for middling cotton, but this margin subsequently increased. Even at that, it paid the farmer well to harvest the frostbitten cotton. The large proportion of bolly cotton in several of the States materially lowered the average price received for the crop.

SEA ISLAND COTTON.

The sea-island cotton crop of 1917 was 71,000 bales, against a crop of 93,000 bales in 1916, a reduction of 23.7 per cent. This was largely because of weevil infestation, the pest having reached approximately all the sea-island producing sections of Georgia and Florida. In the latter State in 1917 sea-island and other cotton was planted far down the peninsula and splendid yields secured. In South Carolina the yield was reduced somewhat by the early frost in October.

Sea-island cotton is bringing phenomenally high prices, and every effort is being made by farmers to produce it wherever it will grow and maintain its length and strength of fiber. Only a comparatively small portion of the cotton-producing area of the United States is adapted to the growth of this variety, which, requiring a longer maturing season, is especially susceptible to boll-weevil damage. Experiments were conducted in southern Louisiana the past two seasons with both sea-island and Egyptian cotton; the quantity produced was small, and it is still in the experimental stage, with a slightly increasing acreage.

QUALITIES REQUIRED FOR SPINNING.

The heavier-producing and well-recognized staple-producing sections of the country show an increase in production. This was because of the premiums previously paid for extra-length cotton and for the reason that early maturing strains have been propagated in recent years which have been found to be about as early and prolific as the shorter varieties of lint. Length of staple does not always determine spinning quality. Buyers pay a considerable premium for cotton combining both length and strength of fiber over cotton of considerable length but of poor strength. For this reason certain localities in which years of experience have demonstrated the power to produce this extra-quality staple receive a considerable premium over new staple districts or over sections where weather conditions tend to unfavorably affect the length or strength of fiber from year to year. Spinners, being satisfied with results from a certain section, offer premiums for cotton from the same point of origin year after year. Mills are willing to pay an extra price for "hard cotton" or "extra-hard cotton." Ordinarily there is less waste in spinning this cotton, and it is sometimes used to mix with soft lint to lessen spinning waste and to improve the strength of the fabric. After a mill finds by actual experience that cotton from a certain section invariably meets its requirements, that from other sections apparently just as good is view with suspicion until it is thoroughly tested. In some sections $1\frac{1}{16}$-inch cotton brings a premium over $1\frac{1}{8}$-inch cotton grown in other sections of the same States.

The style and hardness of staple of equal length is very important to the Manchester and American mills, and the man who passes on staple should be a good judge of staple cotton, taking into consideration that even, smooth staple cotton is worth considerably more than uneven cotton.

DIFFERENCES IN CLASSIFICATION OF COTTON ACCORDING TO LENGTH OF STAPLE.

There is a considerable difference between the American and Liverpool ideas as to length of staple. Much of the Texas crop, which averages around $1\frac{1}{16}$ inches, is sold in Liverpool on types variously described as "good $1\frac{1}{8}$," "full $1\frac{1}{8}$," "hard $1\frac{1}{8}$," etc., when most of this cotton would probably not staple over $1\frac{1}{16}$ inches, American standard, or measured by rule. Because of this great confusion in stapling, the millimeter standard is gaining ground, as there is a general understanding of what is meant, for instance, by 32-millimeter cotton, whereas a reference to $1\frac{1}{8}$-inch cotton brings forth the query, "What kind of inch-and-one-eighth?" It is for this reason that the millimeter standard is gaining friends, especially by the exporters of staple and many of the cotton manufacturers.

Every market has a different classification and understanding of staples. Staple cotton is generally bought on the basis of samples, really, the staple being judged from types supplied by the seller or from the seller's own "marks," it being understood that the seller may call the staple whatever he chooses. One trade name for extra-length cotton is "Benders." This is supposed to be heavy-bodied, strong, staple cotton, running from $1\frac{1}{16}$ to $1\frac{3}{16}$ inches or better in staple. This cotton is called Benders from the fact that it was originally grown in the river bends of the Mississippi. Of recent years factors have sold much cotton for Benders that never grew near a river. The test for this cotton is body and strength of fiber, with a staple running not less than $1\frac{1}{16}$ inches in length.

EGYPTIAN AND DURANGO COTTON.

The States producing the largest amount of extra-staple cotton in the order named are Mississippi, Texas, Arkansas, Oklahoma, South Carolina, and Louisiana. These six States produced in 1917 92.4 per cent of the total staple crop, not including Egyptian and Sea Island cotton. Georgia, Tennessee, Missouri, and in fact all of the cotton States produce small quantities of staple cotton. Arizona and California together produced 27,000 bales of the Egyptian and Durango varieties in 1917.

In California, Durango cotton was damaged by a shortage of water in the Imperial Valley during August, and the production was only 23.2 per cent of the total crop as against 30 per cent last year. Egyptian cotton is growing in favor in California, the crop in 1917 being upward of 1,000 bales. This crop was grown mostly in the Palo Verde Valley and near Yuma. Considerable Egyptian cotton, because of the great premium offered for it, will be grown in the Imperial Valley of California in 1918.

In Arizona, Egyptian cotton is now being grown exclusively in the Salt River Valley, the high premium being received for this crop forcing out the shorter varieties. In addition, Egyptian cotton is being grown to a considerable extent in the Yuma Valley. The total production of Egyptian cotton in Arizona in 1917 was 13,000 bales. Owing to the high premium received by the grower of the Egyptian variety, which enters into competition with Sea Island cotton grown in the Atlantic States, where the crop is seriously menaced by the progress of the boll weevil, great interest is being taken in Arizona and California lands which will produce this type of cotton. The effort is being made to increase the production of Egyptian cotton to make up for the probable reduction in the Sea Island crop, which it is feared will result from the continued advance of the boll weevil into Sea Island territory. It is very probable that the 1918 crop of Egyptian cotton in Arizona and California will be much larger than any grown heretofore. There is at last a sufficient quantity of planting seed of the Yuma and Pima varieties developed in Arizona to plant a large acreage of Egyptian cotton. The acreage planted in

short cotton heretofore in Arizona will be largely planted to Egyptian in 1918.

LOCATION OF AREAS OF THE PRINCIPAL PRODUCTION OF EXTRA-LENGTH COTTON.

The areas of the principal production of extra-length cotton—that is, where year after year the lint retains its uniform length and strength of fiber, texture, etc.—are well known to the trade. Cotton from these long-established staple sections always brings a premium over that grown in areas not so well known or where the season has a marked influence on the quality of the staples. The most important of these areas are the alluvial sections of Mississippi, between the Mississippi and Yazoo Rivers, known as the Delta; and similar soils in Arkansas along the Arkansas, Mississippi, and other large streams; in eastern and northwestern Louisiana; in northeastern Texas and eastern Oklahoma. In South Carolina there is much extra staple grown in the northeastern portion of the State in the counties of Darlington, Marlboro, Florence, Chesterfield, and a number of others. Mississippi and Arkansas showed a heavy increase of production of staples in 1917. In fact, all of the staple-producing areas showed an increase except Louisiana, where there was a slight falling off.

AVERAGE PRICE RECEIVED BY GROWERS.

The average price received by growers for upland long-staple cotton in 1917 varied considerably. In the sections where much of the extra-length staple was above $1\frac{3}{8}$ inches, the average price received was considerably higher than in those sections where the bulk of the crop was scant $1\frac{3}{8}$. Prices for cotton above $1\frac{1}{4}$ inches in length are more uniform than for cotton from $1\frac{1}{8}$ to $1\frac{1}{4}$ inches. In Mississippi, Arkansas, and South Carolina the average is much higher than in Texas and Oklahoma, where not so much attention is paid to length and where the bulk of the crop will run from 1 inch to $1\frac{1}{8}$ inches in length. These prices are those prevailing about December 1, and, while they represent the price differences for long and short staple prevailing at that time, they do not represent the averages for the entire crop. Prices for staples around December 1 were considerably higher than later in the season. The planter realized a good price for his extra-length cotton, but much of it is now being held at a loss by factors at concentration points.

YIELD PER ACRE.

Extra-length cotton shows a heavier yield per acre than short cotton. This cotton is planted on the most fertile lands and is raised largely by the best class of farmers. Planted on the same class of soil and cultivated alike, short cotton will yield more lint per acre than long. Extra-length cotton usually requires from 100 to 300 pounds more of seed cotton to make a 500-pound bale than short cotton.

COTTON VARIETIES COMMONLY GROWN.

The following are the principal varieties reported as most generally grown in the different important staple-producing States:

Producing length of over 1¼ inches.—Sea Island in South Carolina, Georgia, and Florida; Egyptian of the Pima and Yuma varieties in Arizona and California; Webber 49, Adair, Pemiscott, Mississippi Silk, Hartsville, Florodora, Foster, Keenan, and Coulette.

Producing length of 1⅛ to 1¼ inches.—Columbia, Columbia Big Boll, Black Rattler, Foster, Webber and Webber 49, Express, Florodora, Allen Silk, Mississippi, White Seed, and Durango.

Producing length under 1⅛ inches.—Triumph, Mebane, Kings, Lone Star, Simpkins, Rowden, Cleveland, Big Boll, Trice, Moneymaker, Mortgage Lifter, Peterkin, Half and Half.

Estimated length of cotton lint, crops of 1917 and 1916, in the principal staple-cotton producing States showing proportions, yield, and selling price of different lengths.

[In percentages and in equivalent 500-pound, gross weight, bales. Bales in thousands, i. e., 000 omitted.]

State.	Proportion of total crop composed of long staple, short staple, Sea Island, and Egyptian.					
	Cotton ginned.		Long staple, 1⅛ inches or over.			
	1917	1916	1917	1916	1917	1916
	Bales.	*Bales.*	*P. ct.*	*P. ct.*	*Bales.*	*Bales.*
South Carolina	1,236	930	11.5	9.0	142	84
Mississippi	903	811	49.7	38.0	449	308
Louisiana	638	443	4.0	7.0	26	31
Texas	3,124	3,725	7.6	5.0	237	186
Arkansas	973	1,134	24.0	17.0	234	193
Oklahoma	958	823	17.0	11.0	163	91
California	56	44	23.2	30.0	13	13
Arizona	21	8	1.0	43.0	.....	4
All other States	3,377	3,519	2.7	2.8	90	99
United States	11,286	11,437	12.0	8.8	1,354	1,009

Proportion of total crop composed of long staples, short staples, Sea Island, and Egyptian.

State.	Short staples under 1⅛ inches.				Sea Island or Egyptian.			
	1917	1916	1917	1916	1917	1916	1917	1916
	P. ct.	*P. ct.*	*Bales.*	*Bales.*	*P. ct.*	*P. ct.*	*Bales.*	*Bales.*
South Carolina	88.1	90.1	1,089	843	0.4	0.3	5	3
Mississippi	51.3	62	454	503	.....	.....	.....	.....
Louisiana	96	93	612	412	.....	.....	.....	.....
Texas	92.4	95	2,887	3,539	.....	.....	.....	.....
Arkansas	76	83	739	941	.....	.....	.....	.....
Oklahoma	83	89	795	732	.....	.....	.....	.....
California	75.4	70	42	31	1.4	.....	1	.....
Arizona	35	57	7	4	63	.....	13	.....
Georgia	.....	.....	.....	.....	2.0	3.5	38	64
Florida	.....	.....	.....	.....	74	63	28	26
All other States	95.3	97.2	3,207	3,331	.....	.....	.....	.....
United States	87.3	90.4	9,832	10,336	.8	.7	85	93

Proportion of crop over 1¼ inches in length and that 1⅛ to 1¼ inches, seasons of 1917 and 1916.

[Not including Sea Island and Egyptian. Bales in thousands, i. e., 000 omitted.]

State.	Over 1¼ inches.				1⅛ to 1¼ inches, inclusive.			
	1917	1916	1917	1916	1917	1916	1917	1916
	P. ct.	*P. ct.*	*Bales.*	*Bales.*	*P. ct.*	*P. ct.*	*Bales.*	*Bales.*
South Carolina	2.9	1.5	36	14	8.6	7.8	106	73
Mississippi	5	3	45	24	44.7	35	404	284
Louisiana	0.5	1.0	3	4	3.6	6	23	27
Texas	0.5	.....	15	.....	7.1	5	222	186
Arkansas	2.5	1.3	25	15	21.5	15.7	209	178
Oklahoma	0.8	.....	8	.....	16.2	11	155	90
California	.....	.....	.....	.....	23.2	30	13	13
All other States	0.3	.....	9	.....	2.4	10	81	95
United States	1.2	1.3	141	.....	10.8	8.3	1,213	946

Yield of lint per acre, long staple above 1¼ inches, 1⅛ to 1¼ inches, inclusive; under 1⅛ inches, Sea Island and Egyptian.

State.	Long staple above 1¼ inches.	Long staple 1⅛ to 1¼ inches.		Short staple under 1⅛ inches.		Sea Island and Egyptian.	
	1917	1917	1916	1917	1916	1917	1916
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
South Carolina	240	259	156	197	155	136	125
Mississippi	160	190	133	132	117	.....	.....
Louisiana	170	236	166	232	176	.....	.....
Texas	191	168	160	133	159	.....	.....
Arkansas	163	168	200	185	209	.....	.....
Oklahoma	169	174	163	175	153	.....	.....
California	.....	182	275	246	275	163	.....
Arizona	.....	200	232	225	450	224	.....
Georgia	.....	.....	160	.....	.....	122	130
Florida	.....	.....	80	.....	.....	115	123
All other States	162	170	.....	156	.....	.....	.....
United States	184.9	174.8	160	161.3	163	136.6	128

Average price per pound received by growers about Dec. 1.

State.	Long staple, 1⅛ inches or over.	Long staple, 1⅛ to 1¼ inches.		Short staple, under 1⅛ inches.		Sea Island and Egyptian.	
	1917	1917	1916	1917	1916	1917	1916
	Cents.	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
South Carolina	41.2	36.8	25.3	28.2	19.3	72.8	49
Mississippi	44	35.5	25	28.4	19.4	.....	.....
Louisiana	43.1	33.2	24	26.7	19	.....	.....
Texas	49	29.8	20.5	26.9	19	.....	.....
Arkansas	43.5	34.9	23	28.1	19.1	.....	.....
Oklahoma	38.1	28.9	19.6	26.6	19	.....	.....
California	.....	36	26	28.8	20	71	.....
Arizona	.....	34	.....	29	19	72	49
Georgia	.....	.....	.....	.....	.....	72.1	46
Florida	.....	.....	.....	.....	.....	71.9	46
All other States	44.5	33.5	.....	28.1	19.3	.....	.....
United States	43.4	33.5	.....	27.6	19.1	72	46.1

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